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In Re Application of:

Applicants : Xuewen Zhu et al.
Serial No. : 10/634,638
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Title of Invention : BAR CODE SYMBOL READING DEVICE HAVING INTELLIGENT DATA COMMUNICATION INTERFACE TO A HOST SYSTEM
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Attorney Docket No. : 108-141USANA0

Honorable Commissioner of Patents
and Trademarks
Washington, DC 20231

INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. 1.97

Sir:

In order to fulfill Applicants' continuing obligation of candor and good faith as set forth in 37 C.F.R. 1.56, Applicants submit herewith an Information Disclosure Statement prepared in accordance with 37 C.F.R Sections 1.97, 1.98 and 1.99.

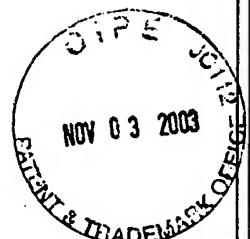
The disclosures enclosed herewith are as follows:

U.S. PUBLICATIONS

<u>NUMBER</u>	<u>FILING DATE</u>	<u>TITLE</u>
6,283,375 B1	December 3, 1998	AUTOMATICALLY-ACTIVATED HAND-SUPPORTABLE LASER SCANNING BAR CODE SYMBOL READING SYSTEM WITH DATA TRANSMISSION ACTIVATION SWITCH
6,149,063	September 14, 1998	METHOD AND APPARATUS FOR BAR CODE ASSOCIATION FOR WIRELESS NETWORK
6,115,678	February 23, 1999	UNIVERSAL HOST INTERFACE FOR DATA ACQUISITION SYSTEMS
6,109,614	July 17, 1997	REMOTE SENSING APPARATUS OF SUPERSONIC PROJECTILE



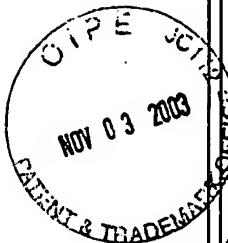
6,098,877	May 21, 1997	INTERFACE AND METHOD FOR CONTROLLING AN OPTICAL READER HAVING A SCANNING MODULE
5,979,766	June 13, 1997	BAR CODE SYMBOL READING SYSTEM HAVING ONE-WAY RF SIGNAL- RECEIVING KEYBOARD WEDGE INTERFACE
5,905,249	October 21, 1997	MULTIPLE-INTERFACE SELECTION SYSTEM FOR COMPUTER PERIPHERALS
5,875,415	September 18, 1997	UNIVERSAL HOST INTERFACE FOR DATA ACQUISITION SYSTEMS
5,789,728	January 31, 1995	TWO-DIMENSIONAL BAR CODE SCANNER INTERFACE
5,745,794	September 30, 1996	SYSTEM FOR CONVERTING SIGNALS INTO A PREDETERMINED DATA EXCHANGE FORMAT WITH PLUG-IN MODULAR CONNECTOR HAVING VOLTAGE, GROUND, DATA, AND CLOCK TERMINALS FOR A SCANNING HEAD
5,703,347	September 9, 1996	MULTIPLE-INTERFACE SELECTION SYSTEM FOR COMPUTER PERIPHERALS
5,675,139	December 6, 1996	INTERFACE ARRANGEMENT FOR USE WITH CONSUMER DEVICES
5,664,229	May 18, 1995	ACCESSORY FOR CONVERSION WITH HOUSING WITH FIRST CONNECTION INCLUDES HOST CABLE AND HOST CONNECTOR AND SECOND CONNECTION INCLUDING A PLUG-IN MODULAR CONNECTOR
5,640,002	August 15, 1995	PORTABLE RF ID TAG AND BARCODE READER
5,592,560	September 8, 1994	METHOD AND SYSTEM FOR BUILDING A DATABASE AND PERFORMING



		MARKETING BASED UPON PRIOR SHOPPING HISTORY
5,563,402	September 13, 1994	MULTIPLE-INTERFACE SELECTION FOR COMPUTER PERIPHERALS
5,548,510	October 28, 1994	METHOD AND APPARATUS FOR PROVIDING A UNIVERSAL ELECTRICAL INTERFACE BETWEEN AN AIRCRAFT AND AN ASSOCIATED STORE
5,347,113	March 25, 1993	MULTIPLE-INTERFACE SELECTION SYSTEM FOR COMPUTER PERIPHERALS
5,330,370	March 22, 1993	MULTIPLE-INTERFACE SELECTION SYSTEM FOR COMPUTER PERIPHERALS
5,258,604	January 28, 1992	BAR CODE SCANNER
5,250,792	August 18, 1992	PORTABLE LASER DIODE SCANNING HEAD
5,222,164	August 27, 1992	ELECTRICALLY ISOLATED OPTICAL CONNECTOR IDENTIFICATION SYSTEM
5,214,268	August 15, 1991	APPARATUS FOR PROGRAMMING A BAR CODE READER
5,200,597	February 7, 1991	DIGITALLY CONTROLLED SYSTEM FOR SCANNING AND READING BAR CODES
5,181,858	August 30, 1991	CABLE TYPE IDENTIFYING AND IMPEDANCE MATCHING ARRANGEMENT
5,179,270	May 8, 1989	SCANNER SYSTEM INTERFACE
5,092,793	April 23, 1990	SWIVEL APPARATUS PROVIDING STRAIN RELIEF FOR AN ELECTRICAL CONDUCTOR
5,081,342	December 12, 1986	UNIVERSAL DIGITAL CODE PROCESSOR



5,040,993	June 19, 1990	INTERCHANGEABLE ADAPTER MODULE FOR ELECTRONIC DEVICES
4,972,470	August 6, 1987	PROGRAMMABLE CONNECTOR
4,954,101	July 6, 1989	IMPROVED CABLE FOR COUPLING BETWEEN DATA TERMINALS AND DATA SETS
4,941,845	June 7, 1989	DATA TRANSFER CABLE
4,930,848	January 26, 1989	PORTABLE LASER SCANNER WITH INTEGRAL SCANNER ENGINE
4,915,639	November 8, 1988	"SMART" AC RECEPTACLE AND COMPLEMENTARY PLUG
4,902,244	May 19, 1989	CONNECTOR
4,894,522	November 19, 1987	INTERFACE APPARATUS
4,889,497	August 22, 1988	SHIELDED ELECTRICAL CONNECTOR
4,868,375	August 22, 1988	METHOD FOR CHANGING THE FUNCTIONS OF A BAR CODE READER
4,866,257	November 19, 1987	BAR CODE SCANNER AND METHOD
4,866,661	March 26, 1986	COMPUTER CONTROLLED RENTAL AND SALE SYSTEM AND METHOD FOR A SUPERMARKET AND THE LIKE
4,861,972	November 5, 1987	BAR CODE SCANNER AND METHOD OF PROGRAMMING
4,820,193	April 4, 1988	PANEL MOUNTED ELECTRICAL CONNECTOR INCLUDING MEANS FOR PROVIDING AN INDICATION OF CORRECT CONDUCTOR TERMINATION
4,699,447	February 27, 1986	OPTICAL BEAM SCANNER WITH ROTATING MIRROR
4,694,182	February 27, 1986	HAND HELD BAR CODE READER WITH MODULATED LASER DIODE AND DETECTOR



4,686,506	July 28, 1986	MULTIPLE CONNECTOR INTERFACE
4,579,407	September 7, 1984	INTERFACE CABLE
4,543,450	January 18, 1984	INTEGRATED CONNECTOR AND MODEM
4,500,933	April 2, 1982	UNIVERSAL INTERFACE UNIT
3,956,615	June 25, 1974	TRANSACTION EXECUTION SYSTEM WITH SECURE DATA STORAGE AND COMMUNICATIONS
US 2002/060247 A1	May 23, 2002	ANALYTE TEST INSTRUMENT SYSTEM INCLUDING DATA MANAGEMENT SYSTEM

TECHNICAL PUBLICATIONS

User Manual for the CYPRESS CY7C63722/23 and CY7C63742/43 enCoRe™ USB Combination Low-Speed USB & PS/2 Peripheral Controller by Cypress Semiconductor Corporation, May 25, 2000, pages 1-50.

STATEMENT OF PERTINENCE

U.S. Patent No. 6,283,375 B1 to Wilz, Sr. et al. discloses an automatically-activated code symbol reading system comprising a bar code symbol reading mechanism contained within a hand-supportable housing having a manually-actuatable data transmission switch. During symbol reading operations, the bar code symbol reading mechanism automatically generates a visible laser scanning pattern for repeatedly reading one or more bar code symbols on an object during a bar code symbol reading cycle, and automatically generating a new symbol character data string in response to each bar code symbol read thereby. During system operation, the user visually aligns the visible laser scanning pattern with a particular bar code symbol on an object (e.g. product, bar code menu, etc.) so that the bar code symbol is scanned, detected and decoded in a cyclical manner. Each time the scanned bar code symbol is successfully read during a bar code symbol, a new bar code symbol character string is produced, while an indicator light on the hand-supportable housing is actively driven. During the bar code symbol reading cycle, the user actuates the data transmission switch producing a data transmission control activation signal and enabling a subsequently produced symbol character data string to be automatically selected and transmitted to the host system. By virtue of the present invention, automatically-activated hand-supportable bar code symbol readers are now able to accurately read, in an unprecedented manner, bar code symbols on bar code menus, consumer products positioned in crowded point-of-sale



environments, and other objects requiring automatic identification and/or information access.

U.S. Patent No. 6,149,063 to Reynolds et al. discloses a wireless network having a base station adapted for wireless communications, a wireless bar code scanner and a network ID label having a bar code symbol printed thereon. The bar code symbol includes encoded information pertaining to the base station. A wireless bar code scanner is adapted to scan and decode the network ID label. The wireless bar code scanner initiates a communications link with the base station utilizing information from the decoded network ID label. The wireless bar code scanner includes a light source for illuminating a printed bar code symbol, an electro-optical element for imaging the printed bar code symbol, a decoder for decoding the imaged printed bar code symbol into an alphanumeric string, and an input/output device for conducting wireless communications with the base station.

U.S. Patent No. 6,115,678 to Lieb et al. discloses a universal interface system for use with a data acquisition system including a data acquisition device such as a bar code scanner or scanner integrated terminal for providing digital data signals indicative of acquired data for transmission to a host device such as a computer, and a host device having host-specific input/output data format requirements. The universal interface system comprises universal data exchange means located in the data acquisition device for providing digital data signals in a universal data exchange format independent of the data format requirements of the host device; and a host interface cable coupled to the data acquisition device and to said host device, for transmitting acquired digital data from the data acquisition device to the host device, the interface cable comprising means for translating digital data from the universal data exchange format to the host-specific input/output data format requirements. The interface cable comprises a buffer for storing a host parameter data word used in communications with the host device. The universal data exchange means comprises a memory for storing a plurality of host parameter data words, each of the host parameter data words being associated with one of a plurality of different host interface modules; and means for reading from the memory and transmitting to the host interface module the host parameter data word associated with the particular host interface module operatively connected thereto.

U.S. Patent No. 6,109,614 to Ciarcia discloses a remote targeting apparatus and method comprising surrounding a projectile target with a sensor array, computing projectile impact data, transmitting the data receiving the data at a controller; and displaying information corresponding to the data. RF transmission/reception is performed, most preferably at a frequency of between approximately 902 and 928 MHz, with the controller having RF Faraday cage shielding and collision avoidance being employed to permit multiple sensor arrays to operate in a vicinity of one another. Projectile impact locations within twelve inches of the center of the projectile target are calculated to an average RMS accuracy of less than approximately fifty thousandths of an inch, directly in an orthogonal Cartesian coordinate system. Velocity is also determined via an additional sensor at a predetermined distance from the sensor array which measures a difference in time between the projectile passing the additional sensor and the sensor array. The preferred sensor array has at least two pairs of acoustical sensors, with an additional acoustical transducer orthogonal to the two pairs.

U.S. Patent No. 6,098,877 to Barkan et al. discloses an electrical interface for a scan engine which includes a plurality of control pins including a range limiter mode pin, laser enable and scan enable pins, a signal output pin and a start-of-scan indicator pin. Operation of the scan

engine can thus be controlled to reduce power consumption and laser on-time as desired.

U.S. Patent No. 5,979,766 to Rockstein et al. discloses a fully automatic bar code symbol reading system having at least one portable bar code symbol reading device and an associated base unit positioned within the data transmission range of the bar code reader range without a physical wiring connection between the bar code reader and the base unit. After each successful reading of a bar code symbol, the bar code reading device automatically produces symbol character data representative of the bar code symbol, synthesizes a group of data packets each containing the symbol character data, and then transmits the synthesized group of data packets to the base unit. Upon the successful receipt of one of the transmitted data packets and the recovery of symbol character data therefrom, the base unit generates an acoustic acknowledgement signal that is perceptible to the user of the bar code symbol reading device and indicates that the transmitted symbol character data has been successfully received. The base unit includes data format conversion circuitry that converts the symbol character data into the same format produced by a computer keyboard, and an interface circuit that interfaces the output port of the base unit with the keyboard input port of the host device.

U.S. Patent No. 5,905,249 to Reddersen et al. discloses an interface selection and configuration system for a computer peripheral in which configuration for the peripheral and/or the host interface is at least in part accomplished by the interface connector cable. In a preferred embodiment, the computer peripheral is equipped with one or more hardware interfaces. The interface connector cable has a first end connector for attaching to the computer peripheral. The first end connector of the interface connector cable is typically a multiple pin connector constructed and arranged to be properly physically and electrically connectable only to a specific computer peripheral of class of computer peripherals, the first end connector including at least one electrical connection between two pins for completing a circuit within the computer peripheral thereby enabling the computer peripheral. Where the peripheral is a data reading device such as a laser scanner or RFID reader, alternate or additional configuration may be obtained, with data reading device, from the label on the interconnect cable. The label, which may for example be a bar code or RFID tag, contains information or instructions by which the data reading device (and/or the host) is configured.

U.S. Patent No. 5,875,415 to Lieb et al. discloses a universal interface system for use with a data acquisition device such as a bar code scanner or scanner integrated terminal for providing digital data signals indicative of acquired data for transmission to a host device such as a computer, and a host device having host-specific input/output data format requirements. The universal interface system comprises universal data exchange means located in the data acquisition device for providing digital data signals in a universal data exchange format independent of the data format requirements of the host device; and a host interface cable coupled to the data acquisition device and to said host device, for transmitting acquired digital data from the data acquisition device to the host device, the interface cable comprising means for translating digital data from the universal data exchange format to the host-specific input/output data format requirements. The interface cable comprises a buffer for storing a host parameter data word used in communications with the host device. The universal data exchange means comprises a memory for storing a plurality of host parameter data words, each of the host parameter data words being associated with one of a plurality of different host interface modules; and means for reading from the memory and transmitting to the host interface module the host parameter data word associated

with the particular host interface module operatively connected thereto.

U.S. Patent No. 5,789,728 to Barile et al. discloses an interface between a two-dimensional bar code scanner and a host digital decoder provided through a 15-pin electronic connector, which transfers to the decoder an actuating signal either from a scanner trigger switch or from an external device. In response, the digital decoder provides the scanner with operating power. The scanner generates and relays a bar code signal and a scanning direction signal back to the digital decoder, which uses these signals to identify a bar code being scanned as a one-dimensional or two-dimensional code. If the bar code is determined to be a two-dimensional code, upon detection of laser pattern alignment with the label the digital decoder sends a scanning control signal to the scanner to control a laser pattern generated by the scanner.

U.S. Patent No. 5,745,794 to Poloniewicz et al. discloses a data processing system which includes a scanning head for electro-optically reading bar code symbols and decoding such symbols into digital decoded signals; a host device having a predetermined data exchange format for exchanging data and controls signals with peripheral equipment; an interface arrangement for interconnecting the host device and the scanning head, including a first connector for direct connection to the host device, a second connector for direct connection to a head cable connected to the scanning head; and a conversion circuit for converting the digital decoded signals from the scanning head into digital data signals having a format compatible with the predetermined data exchange format of the host device.

U.S. Patent No. 5,703,347 to Reddersen et al. discloses an interface selection and configuration system for a computer peripheral in which configuration for the peripheral and/or the host interface is at least in part accomplished by the interface connector cable. In a preferred embodiment, the computer peripheral is equipped with one or more hardware interfaces. The interface connector cable has a first end connector for attaching to the computer peripheral. The first end connector of the interface connector cable is typically a multiple pin connector constructed and arranged to be properly physically and electrically connectable only to a specific computer peripheral or class of computer peripherals, the first end connector including at least one electrical connection between two pins for completing a circuit within the computer peripheral thereby enabling the computer peripheral. Where the peripheral is a data reading device such as a laser scanner or RFID reader, alternate or additional configuration may be obtained, with data reading device, from the label on the interconnect cable. The label, which may for example be a bar code or RFID tag, contains information or instructions by which the data reading device (and/or the host) is configured.

U.S. Patent No. 5,675,139 to Fama discloses a data processing system which includes a head for electro-optically reading coded indicia to generate digital decoded data in a predetermined data exchange format. An interface arrangement is used for connecting the head to any selected one of a plurality of electronic devices having individual data processors. Thus, a common data exchange format is established for all the devices, and conversion circuitry is employed for converting the predetermined data exchange format to the common format. The conversion circuitry is operatively connected between the head and the selected device.

U.S. Patent No. 5,664,229 to Bhargava et al. discloses an interface arrangement connected between a scanning head for electro-optically reading bar code symbols and a host device having a

host processor operative for processing signals with a predetermined data exchange format. The interface arrangement includes a housing; a first connector on the housing for direct connection to the host device; a second connector on the housing for direct connection to a head cable connected to the scanning head; and a conversion circuit within the housing for converting decoded signals generated in the head into data signals having a format compatible with the predetermined data exchange format of the host processor.

U.S. Patent No. 5,640,002 to Ruppert et al. discloses a portable barcode and RF ID tag reader that gathers information about items to be purchased by reading barcodes or RF ID tags. A store host computer gathers information about items to be purchased from the portable barcode/ID Tag readers and then the items are bagged by the customer at the checkout stand or by employees of the store at the checkout stand or in a separate warehouse from which the customer picks up the order. The portable barcode/RF ID tag reader can also be used in authenticating articles by accessing a factory computer using a serial number for the article scanned from an RF ID tag on the article. The portable barcode/RF ID tag reader is comprised of a microprocessor coupled to a bar code reader, and RF ID tag reader, a spread spectrum RF transceiver, a communication port, an audible feedback device, a touchscreen or light pen and display, a thermal printer and a magnetic stripe card reader and a smart card reader.

U.S. Patent No. 5,592,560 to Deaton et al. discloses a system for performing retail targeted marketing on customers. The system comprises a terminal for entering selected indicia from identification presented by customers at a point-of-sale in order to generate an identification code for each customer. A reader detects the machine readable product code on products purchased by the customers. A processor responsive to the terminal and the reader creates a centralized database of the store's customers' data relating to product codes of products previously purchased by the customers during previous visits, in association with the customer's unique identification codes. The processor generates a signal upon entry of the identification codes of customers whose transactions meet predetermined product purchasing history criteria. Circuitry responsive to the processor and the database dispenses a sales promotion at the point-of-sale to the customers who meet the predetermined product purchasing history criteria with the sales promotion including a product infrequently purchased by the customers so that the customers are incented to return to the retail establishment to purchase the product in a future transaction.

U.S. Patent No. 5,563,402 to Reddersen et al. discloses an interface selection and configuration system for a computer peripheral in which configuration for the peripheral and/or the host interface is at least in part accomplished by the interface connector cable. In a preferred embodiment, the computer peripheral is equipped with one or more hardware interfaces. The interface connector cable has a first end connector for attaching to the computer peripheral. The first end connector of the interface connector cable is typically a multiple pin connector constructed and arranged to be properly physically and electrically connectable only to a specific computer peripheral or class of computer peripherals, the first end connector including at least one electrical connection between two pins for completing a circuit within the computer peripheral thereby enabling the computer peripheral. Where the peripheral is a data reading device such as a laser scanner or RFID reader, alternate or additional configuration may be obtained, with data reading device, from the label on the interconnect cable. The label, which may for example be a bar code or RFID tag, contains information or instructions by which the data reading device (and/or the host) is configured.

U.S. Patent No. 5,548,510 to Ebert et al. discloses a method and apparatus for providing a universal electrical interface between an aircraft and an associated store which includes an aircraft interface and a store interface for bidirectionally communicating with the aircraft according to a first predetermined format and with the associated store according to a second predetermined format, respectively, as well as a universal signal conditioner for selectively processing signals received by both the aircraft interface and the store interface. The selective processing includes translating the signals received by the aircraft interface to the second predetermined format of the associated store and translating signals received by the store interface to the first predetermined format of the aircraft. The universal electrical interface also determined the type of aircraft from a number of predetermined types of aircraft, each of which is adapted to process signals according to a different predetermined format. By providing such selective processing of signals of different formats, each of the different types of aircraft can bidirectionally communicate, according to the predetermined format that the aircraft is adapted to process, with the associated store.

U.S. Patent No. 5,347,113 to Reddersen et al. discloses an interface selection and configuration system for a computer peripheral in which configuration for the peripheral and/or the host interface is at least in part accomplished by the interface connector cable. In a preferred embodiment, the computer peripheral is equipped with one or more hardware interfaces. The interface connector cable has a first end connector for attaching to the computer peripheral. The first end connector of the interface connector cable is typically a multiple pin connector constructed and arranged to be properly physically and electrically connectable only to a specific computer peripheral or class of computer peripherals, the first end connector including at least one electrical connection between two pins for completing a circuit within the computer peripheral thereby enabling the computer peripheral. Where the peripheral is a data reading device such as a laser scanner, alternate or additional configuration may be provided by reading, with data reading device, a label on the interconnect cable. The label, which may for example be a bar code, contains information or instructions by which the data reading device (and/or the host) is configured.

U.S. Patent No. 5,330,370 to Reddersen et al. discloses an interface selection and configuration system for a computer peripheral in which configuration for the peripheral is at least in part in accomplished by the interface connector cable. In a preferred embodiment, the computer peripheral is equipped with one or more hardware interfaces. The interface connector cable has a first end connector for attaching to the computer peripheral. The first end connector of the interface connector cable is typically a multiple pin connector constructed and arranged to be properly physically and electrically connectable only to a specific computer peripheral or class of computer peripherals, the first end connector including at least one electrical connection between two pins for completing a circuit within the computer peripheral thereby enabling the computer peripheral.

U.S. Patent No. 5,258,604 to Behrens et al. discloses a portable bar code scanner system which uses various interchangeable interface boards which allow the scanner system to be used with a plurality of different input/output devices (transaction terminals, computers, cash registers) having different operating characteristics. One of these boards is capable of accepting and transmitting digital character strings of various bit lengths to accommodate the operating characteristics of input/output devices using data in a string of predetermined bit length.

U.S. Patent No. 5,250,792 to Swartz et al. discloses a portable laser diode scanning head, aimable at each symbol to be read, emits and receives non-readily-visible laser light, and is equipped with a trigger-actuated aiming light arrangement for visually locating and tracking each symbol. A compact laser diode optical train and an optical folded path assembly, as well as an interchangeable component design and an integral window construction for the head also are disclosed.

U.S. Patent No. 5,222,164 to Bass, Sr. et al. discloses a connector/cable identification system which comprises a plug having an extension and a female housing having at least two pairs of optical emitter/sensors. Each emitter/sensor pair detects whether the extension is therebetween. Because different extensions have different lengths or aperture configurations, the type of connector (and thus associated cable) can be determined. Voltage isolation between the cable (i.e., a common carrier transmission line) and the apparatus receiving the cable (i.e., a personal computer) is maintained by physically separating the transmission circuitry from the identification circuitry.

U.S. Patent No. 5,214,268 to Doing discloses a method and apparatus for programming an optical bar code reader. The method includes the steps of storing programming binary data in a storage device, coupling a light emitting diode to the storage device enabling the diode to be operated in accordance with the binary data stored in the storage means and scanning the diode with a bar code reader enabling the bar code reader to be programmed in response to reading the scanned binary data. The apparatus includes a processor which stores programming data in a EEPROM which is operated to output binary data to a light emitting diode enabling the diode to operate upon receiving a binary one bit and disabled upon receiving a binary zero bit which condition is read by the bar code reader for use in programming the reader.

U.S. Patent No. 5,200,597 to Eastman et al. discloses a unitary hand-held bar code scanner and reader which produces an elliptical beam, oriented with its major axis along the direction of the bars, utilizing optics employing far field diffraction effects to shape the beam and maintain its elliptical aspect (length to width ratio) constant over a distance in front of the scanner where bar codes may be located. The optics eliminates parallax even though the photodetector and light source (preferably a laser diode) are located offset from each other on a board on which the optics are mounted. A housing assembly has channels which mount the board therein without shock absorbing devices. A digital microcomputer controller and peripheral devices regulate the optical power output from the laser diode and prevents catastrophic failure, if the electrical current through the laser diode exceeds safe limits. Digital control of the gain of the electronic circuits which provide the signals from which bar code information can be decoded and for the operation and control of a motor for oscillating a deflector which scans the beam across the code are also provided utilizing the microcomputer. The microcomputer also controls interface circuits to provide compatibility with auxiliary equipment and host computers which generate commands and requires data inputs of various polarity and format.

U.S. Patent No. 5,181,858 to Matz et al. discloses an arrangement in a token ring line concentrator for providing appropriate connections to a cable which includes a connector adaptor having a printed circuit board on which selected contact members are left either unconnected or shorted together to identify the particular type of adaptor, thus identifying the particular type of

cable plugged into the adaptor. The port to which the adaptor is inserted includes switchable connections controlled by the selective energization of a relay coil. The coil is energized when an open connection between the selected contact members is identified.

U.S. Patent No. 5,179,270 to Taussig et al. discloses an optical scanner for use at a checkout counter which determines information relating to products to be purchased, including coded label data. The scanner supplies the information to a cash register system. The scanner includes a scanner controller for reading coded labels on the products. The scanner further includes an interface circuit, mounted in said scanner and receiving power therefrom, for providing coded label data to said cash register system.

U.S. Patent No. 5,092,793 to Stephan discloses a swivel apparatus which couples an electrical conductor connected to an electrical device, such as a hand held, bar code scanner. The swivel apparatus includes a housing with a first end portion fixedly connectable to an electrical device and a freely movable second end portion. The second end portion rotates about the first end portion to convert bending forces exerted on the electrical conductor supported by the second end portion into movement of the second end portion with respect to the first end portion and twisting of the electrical conductor in a direction to relieve such bending forces on the electrical conductor. In one embodiment, the housing includes a base fixedly attached to the bar code scanner. The base includes an outwardly extending annular flange spaced from the main body of the base by a recess. A two-part clamp having first and second end portions is rotatably mounted on the base. The first end portion of the two part clamp is rotatably mounted about the annular flange and the recess on the base. The second end of the clamp is disposed at a predetermined angle with respect to the first end portion. The combination of the angle between the first and second end portions of the clamp and the rotatable mounting of the clamp with respect to the base causes the swivel apparatus to rotate in the direction of forces exerted on an electrical conductor extending through the swivel connector into the electrical device to minimize bending of the electrical conductor.

U.S. Patent No. 5,081,342 to Knowles et al. discloses a universal digital code processor device for the processing of scanner digital input data including bar code data. The device is flexible and universal in nature in that it can provide inputs to both a fixed program decoder for the decoding of the Universal Product Code (UPC) code as well as a programmable processor which can decode UPC as well as a variety of many other bar codes. Further, the device can handle inputs from various types of scanners including high-speed counter top, hand-held scanners and light pens scanners and magnetic card readers, which provide input data over a wide range of frequencies. A large number of individual frequencies are made available in the device. One of those frequencies may be optimally selected by the programmable processor to provide an internal clock for the device and a clock frequency for the digitizer counters (S clock) and another of these frequencies may be selected to provide a clock frequency (M clock) for the hard wired decoder. A sequencing means is used to control the operation of the device so that it steps through a predetermined number of steps after the occurrence of each transition in the incoming bar code data.

U.S. Patent No. 5,040,993 to Krug et al. discloses an interchangeable adapter module which allows a circuit board, tape cartridge system, or other add-on device to be readily interfaced with any of a variety of different computer systems. A number of pins extend perpendicularly

outward from the device circuit board. An adapter circuit board having a pin connector attached thereto engages these pins to removably secure the adapter module in a plane parallel to the device circuit board. One or more external connectors attached to the adapter circuit board are then plugged into corresponding connectors of the external electronic system. Electrical interface circuitry on the adapter circuit board provides electrical interconnections between a predetermined set of the pins attached to the device, and a predetermined set of the electrical contacts of the external connectors.

U.S. Patent No. 4,972,470 to Farago discloses a configurable connector between two or more devices with at least one of the devices being capable of programming the connector through an interface therewith. The connector contains programmable electronic circuitry capable of being instructed by the device whereby the connector assumes a desired connecting configuration and/or function. In one embodiment the connector is programmed to inquire and determine the configuration of the device to which it is connected. With the results of its analysis the connector adapts the necessary timing, pin-outs, voltages, and other parameters to assure proper communication between the connected devices. In other embodiments the connector contains electronic components to add specific functions for data exchange, such as data buffering, data encryption and the like. In addition, the connector is programmable with interchangeable pin designations thereby obviating the need for rewiring for different applications and physical connections.

U.S. Patent No. 4,954,101 to Nelson discloses an improved method for cabling of data communications between data terminals and data sets in which the present invention is a cable designed to replace conventional cables that are individualized (or customized) as male/female and/or null modem cable configurations. The present invention consists of a plurality of individual wires wherein each wire is assigned an individual use and meaning whereby a minimum of two wires are assigned to each lead wire from a data terminal which does not have a corresponding lead wire on the receiving data set. The second wire is electrically connected to the first wire allowing continuity in a null modem configuration while allowing a direct connection in a straight cable configuration. With the instant invention, the use of an appropriate second wire is all that is required to create all possible combinations of male-female, straight-null cables.

U.S. Patent No. 4,941,845 to Eppley et al. discloses a cable assembling including electrically isolated longer cables connected along a portion of their lengths. Serial and parallel connectors are provided at the appropriate ends of the cables while a shorter cable connects another serial connector to the serial connector at each end of one of the longer cables.

U.S. Patent No. 4,930,848 to Applicant discloses a hand held laser scanner including a housing comprising a hand-grip portion and a body portion. The body portion is hollow and includes a self-contained laser scanner module releasably secured therein. The module is housed within an enclosure having a window, and comprises a source of laser light, a mechanism for sweeping the laser beam within the enclosure to produce a scan pattern comprising at least one line, a reflective beam folding system for projecting the pattern out of the window and onto an object, such as a bar code, and a system for receiving light reflected off the object to convert the reflected light into an electrical signal indicative thereof. The beam sweeping mechanism comprises an oscillating reflective member. The reflective beam folding system comprises at least two mirrors disposed generally opposite each other to receive the beam of light from the beam

sweeping mechanism and to fold its path by reflecting it back and forth within the enclosure. The module includes an output conductor for carrying signals from it which are indicative of the bar code scanned to decoding means located within a hollow cavity in the housing's hand-grip portion.

U.S. Patent No. 4,915,639 to Cohn et al. discloses an intelligent AC outlet adapted to mate with a plug. The plug carries coded information as to the power which it draws. A microprocessor, a switch and a sensor are carried in the outlet. The switch is interposed between the outlet and AC power lines and is operated by the microprocessor. The microprocessor continually scans the sensor. When the plug is inserted into the outlet, the sensor reads the code. If the microprocessor detects a valid code, it operates the switch applying power to the plug. If a valid code is not detected, the outlet remains electrically isolated from the power lines and this can not be overridden by the user.

U.S. Patent No. 4,902,244 to Endo et al. discloses a connector comprising a male and female housing, in which one wall of the female housing is provided with an arrangement of slits having specific widths and spacings which, in combination with a layer of black paint provided on the side wall of the male housing that faces the slits, define a bar code. By having this feature, the fitting state of the male and female housings can be determined and the connector can be identified by type with the use of a bar code reader.

U.S. Patent No. 4,894,522 to Elliott discloses a scanner which includes a microprocessor for controlling operation of the scanner, and an interface circuit, which connects the microprocessor to a host computer and transfers data from the microprocessor to the host computer, permitting the personal computer to act as a host. The interface apparatus includes a printed circuit board, output means, mounted on the printed circuit board, for transmitting data from the personal computer to the scanner interface circuit under control of an output strobe signal, and input means, also mounted on the printed circuit board, for transmitting data from the scanner interface circuit to the personal computer under control of an input strobe signal. The interface apparatus further includes an address means, mounted on the printed circuit board, for providing the output and input strobe signals to the output means and the input means, respectively.

U.S. Patent No. 4,889,497 to Riches discloses a shielded electrical connector which includes a housing arranged to receive a shielded cable, a connector for connecting the cable shield to the connector housing, a connector element located in the housing with contacts connected to tracks on a printed circuit board within the housing, a ground plane spaced from the printed circuit board and electrically connected to the connector housing and a plurality of surge arrestors located between respective tracks on the printed circuit board and the ground plane. A resiliently flexible member may be located between the connector housing and the ground plane for making an electrical connection between the housing and the ground plane.

U.S. Patent No. 4,868,375 to Blanford discloses a bar code reader provided with the capability of reading bar code symbols containing information for causing changes in the functions performed by said reader, as well as reading merchandise identification symbols commonly associated with items such as merchandise being checked out at a point of sale terminal. Tests are provided to determine that the bar code symbols for function changes are proper symbols, and are not merchandise identification symbols, such as UPC symbols.

U.S. Patent No. 4,866,257 to Elliot et al. discloses a scanner for scanning bar code labels and for providing data related thereto to a host computer which includes a scanning apparatus for optically scanning bar code labels and for providing an electrical signal in response thereto, and a decoding circuit, responsive to the scanning apparatus for translating the electrical signal into a digital signal. A microprocessor, responsive to the decoding circuit, controls operation of the scanner and translates the digital signal into data to be provided to the associated host computer under control of control characters. The scanner further includes a non-volatile random access control memory in which control characters are stored, and an interface, connected to the host computer and to the microprocessor, for transferring data from the microprocessor to the host computer and for transferring control characters from the host computer to non-volatile random access control memory via the microprocessor.

U.S. Patent No. 4,866,661 to Prins discloses a system and method for allowing a customer to purchase or rent items from a locked cabinet without the intervention of store personnel. The authorized customer first inputs a membership card and a secret number. If these are correct, the system unlocks the locked cabinets, and the customer is allowed to examine all of the contents in the unlocked cabinet at his or her leisure. The computer continuously monitors the removal of all items from the unlocked cabinet. The customer reads in identifying information from each of the selected items. When the number of items that have been removed equals the number of items that have been read in by the customer, the computer allows the doors of the cabinet to be relocked, and the customer is provided with a customer slip indicating the items that have been selected. The system utilizes a similar method for the return of previously rented items. In the rental context, return of rental items can be performed in parallel with rental of items. High security is achieved without employee monitoring since the customer is held responsible for all items removed during the time that the cabinet is unlocked.

U.S. Patent No. 4,861,972 to Elliott et al. discloses a scanner which includes scanning circuitry for optically scanning bar code labels and providing an electrical signal in response thereto, decoding circuitry, responsive to the scanning circuitry for translating the electrical signal into a digital signal, and a microprocessor, responsive to the decoding circuitry, for controlling operation of the scanner and for translating the digital signal into data to be provided to the associated host computer under control of control characters. A non-volatile random access control memory is provided for storing control characters. Interface circuitry, connected to the host computer and to the microprocessor, transfers data from the microprocessor to the host computer. A switch enables the microprocessor to translate the digital signal into control characters and enables the microprocessor to store the control characters in the non-volatile random access control memory. The control characters may be character sets which, when read by the scanner, indicate that two bar code labels are associated with the same item.

U.S. Patent No. 4,820,193 to Noorly discloses an electrical connector which provides visual recognition of the correct termination of plural discrete conductors. The connector includes a base which supports plural electrical contacts therein. A conductor support assembly supports individually plural discrete conductors in a one-to-one correspondence with the contacts. The conductor support assembly includes thereon color indicative markings which correspond to the color-coded insulation of the conductors. A cover is supportable over the base which encloses the conductor support assembly to enclose the connection assembly. The cover includes plural

apertures therethrough which align with the color indicative markings of the conductor support assembly to permit external visual access to the markings so that a comparison may be made between the markings and the color coding of the insulation.

U.S. Patent No. 4,699,447 to Howard discloses an optical scanner apparatus particularly suited for use in a laser bar code reader which includes a series of mirrors mounted in a basketlike array about the optical beam axis. A mirror is mounted obliquely across the beam axis, directly on the path of the beam, to fold the beam generally radially outwardly toward the array of mirrors. In one embodiment of the invention the oblique first mirror is rotated about the beam axis, while in another embodiment the oblique first mirror is held stationary and the array of mirrors is rotated, to reflect the beam forwardly, generally in the direction the beam axis is pointing. If the oblique first mirror rotates, a plurality of scan lines, including non-parallel scan lines, are formed on a surface to be scanned; if the array of mirrors is rotated instead of the single mirror, a series of parallel scan lines will be produced. The mirrors can be oriented at desired angles to produce virtually any desired scan pattern. In a preferred embodiment a central tubular member or spindle is hollow and within it are located some components of a laser, to shorten the length of the overall assembly into a more compact configuration.

U.S. Patent No. 4,694,182 to Howard discloses a hand held bar code reader which employs a laser diode as its laser source, for an efficient and compact construction. The diode is modulated, and an associated bar code reading detector is timed accordingly, so that (1) the effects of strong ambient light which may be present on the bar code surface can be subtracted out, by alternating reflected light readings of the detector between laser beam plus ambient and ambient alone, and subtracting the readings electronically, and (2) peak power can be increased to obtain more dependable readings while staying within permissible power levels for such devices, since average power is reduced by the modulation of the laser.

U.S. Patent No. 4,686,506 to Farago discloses a connector interface for enabling multiple conversions between first and second data handling systems wherein the data in the first system is arranged in a first type of format and the data in the second system is arranged in a second type of format. The interface includes a connector housing with first and second sets of electrical contact elements exposed at different portions of the housing. Circuitry contained entirely within the housing operates to convert data transmitted to the first set of contact elements from the first data handling system into corresponding data in the second type of format for transmission to the second data handling system through the second set of contact elements, and to convert data transmitted to the second set of contact elements from the second data handling system into corresponding data in the first format for transmission to the first data handling system. One set of electrical contact elements may, for example, be arranged to extend out from the connector housing in two parallel rows to allow the elements to be directly connected to corresponding terminals arranged in a dual in-line configuration on an outside printed circuit board. The other set of electrical contact elements may be arranged for multiple simultaneous or selective output connections for applications such as multiple communications, digital to analog and analog to digital conversions, and a multiple floppy disk controller.

U.S. Patent No. 4,579,407 to Shimada discloses an interface cable comprising a plurality of changeover switches for selectively connecting various lines of the interface cable. It is characterized in that the plurality of changeover switches are provided between RS232C

connectors connected to the ends of the interface cable. The changeover switches can interchange an SD line and an RD line with respect to each other and can selectively connect an RS line, a CS line, a DR line, a CD line and an ER line between the RS232C connectors.

U.S. Patent No. 4,543,450 to Brandt discloses a data communication device which includes a terminal housing having a terminal connector forming a part thereof, with a modem located in the housing so as to be physically and electrically connected to a data terminal or computer when the terminal connector is connected to the data terminal or computer. A telephone cable having a plug means at one end so as to connect to a modular telephone is connected via its other end to the housing so as to be electrically connected to the modem.

U.S. Patent No. 4,500,933 to Chan discloses a universal interface unit for providing output signals in any one of a plurality of different signal formats which stores information relating to each of the different available formats. When signals are to be provided to a particular device, personality data regarding the device enables the particular signal format requirements of the device to be read from the stored information. A signal processor responsive to this information generates output signals in that format. The output signals are transmitted to the device through a switching circuit that is appropriately connected to the device to provide the proper polarity.

U.S. Patent No. 3,956,615 to Anderson et al. discloses a transaction execution system which includes a host data processing system having a multiple account data base and a plurality of transaction terminals in communication with the host. The terminals each include a keyboard, a display, document handling subsystems, a hardware control subsystem, and a communication subsystem and a programmable control subsystem supervising the other subsystems. A user initiates a transaction request by inserting a card into one of the terminals. After reading acceptable account identification information from the card the terminal requests entry of a preassigned personal ID number through the keyboard. The ID number is encrypted by the terminal at least once and communicated to the host along with information read from the card and entered via the keyboard. The host accesses from its stored data base an encrypted ID number corresponding to the received card information and makes a verification comparison of the stored encrypted ID number with the encrypted ID number received from the terminal. By requiring the entry of a non-encrypted ID number at a terminal while storing only encrypted ID numbers at the host, the correspondence between credit card account information and ID numbers need be known only to a few key personnel having access to both the encryption algorithm and a particular key therefor.

U.S. Publication No. US 2002/0060247 A1 to Krishnaswamy et al. discloses a method of managing data for a plurality of analyte test instruments connected to a data communication network. The method comprises the steps of: detecting via a host computer the connection of each instrument to the data communication network; uploading data received from each instrument to the host computer; processing the uploaded data on the host computer for operator review; and downloading configuration data from the host computer to each test instrument, the downloaded data comprising instrument-specific setup and control data. The invention further involves a hand-held analyte test instrument and a docking station for the test instrument.

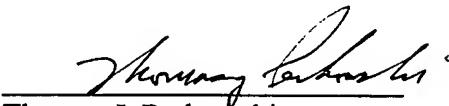
The user manual for the Cypress CY7C63722/23 and CY7C63742/43 Combination Low-Speed USB and PS/2 Peripheral Controller describes a new low-speed USB microcontroller with

enhanced component reduction that will enable peripheral developers to design new products with a minimum number of components.

A separate listing of the above references on PTO Form 1449 and a copy of these references are enclosed herewith for the convenience of the Examiner.

Respectfully submitted,

Dated: October 28, 2003

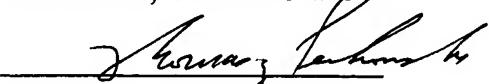


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Date: October 28, 2003

Substitute for form 1449A/PTO
**INFORMATION
DISCLOSURE STATEMENT
BY APPLICANT**

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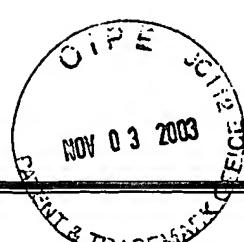
Complete If Known	
Application Number	10/634,638
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First Name Inventor	Xuewen Zhu et al.
Group Art Unit	n/a
Examiner Name	n/a
Attorney Docket Number	108-141USANA0

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Documents		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Int'l Class / Sub Class
		Number	Kind Code (if known)			
		6,283,375 B1		Wilz et al.	09/04/2001	G06K 7/10
		6,149,063		Reynolds et al.	11/21/2000	G06K 7/10
		6,115,678		Lieb et al.	09/05/2000	H03M 5/06
		6,109,614		Ciarcia	08/29/2000	G06F 15/20
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		Number	Kind Code (if known)			
		5,675,139		Fama	10/07/1997	G06K 7/10
		5,664,229		Bhargava et al.	09/02/1997	G06F 5/00
		5,640,002		Ruppert et al.	06/17/1997	G06K 7/10
		5,592,560		Deaton et al.	01/07/1997	G06K 9/00
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		5,200,597		Eastman et al.	04/06/1993	G06K 7/10



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		Number	Kind Code (if known)			
		5,181,858		Matz et al.	01/26/1993	H01R 13/703
		5,179,270		Taussig et al.	01/12/1993	G06K 7/10
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		5,081,342		Knowles et al.	01/14/1992	G06K 7/00
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		4,972,470		Farago	11/20/1990	H04L 9/00
		4,954,101		Nelson	09/04/1990	H01R 11/00
		4,941,845		Eppley et al.	07/17/1990	H01R 11/03
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		4,915,639		Cohn et al.	04/10/1990	H01R 13/703
		4,902,244		Endo et al.	02/20/1990	H01R 3/00
		4,894,522		Elliott	01/16/1990	G06K 7/10
		4,889,497		Riches	12/26/1989	H01R 13/648



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Examiner Initials	Cite No.	U.S. Patent Documents		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Int'l Class / Sub Class
		Number	Kind Code (if known)			
		4,868,375		Blanford	09/19/1989	G06K 7/10
		4,866,257		Elliott et al.	09/12/1989	G06K 7/00
		4,866,661		de Prins	09/12/1989	G06F 15/21
		4,861,972		Elliott et al.	08/29/1989	G06K 7/10
		4,820,193		Noorily	04/11/1989	H01R 3/00
		4,699,447		Howard	10/13/1987	G02B 26/08
		4,694,182		Howard	09/15/1987	G06K 7/10
		4,686,506		Farago	08/11/1987	H03K 13/24
		4,579,407		Shimada	04/01/1986	H01R 11/00
		4,543,450		Brandt	09/24/1985	H04M 11/00
		4,500,933		Chan	02/19/1985	H03K 13/24
		3,956,615		Anderson et al.	05/11/1976	H04Q 9/00
		US 2002/060247 A1		Krishnaswamy et al.	05/23/2002	G06K 7/10



PUBLICATIONS		
Examiner Initials	Cite No.	Description
		User Manual for the CYPRESS CY7C63722/23 and CY7C63742/43 enCoRe™ USB Combination Low-Speed USB & PS/2 Peripheral Controller by Cypress Semiconductor Corporation, May 25, 2000, pages 1-50.

EXAMINER**DATE CONSIDERED**

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance not considered. Include copy of this form with next communication to applicant.

(INFORMATION DISCLOSURE STATEMENT – SECTION 9 PTO-1449)